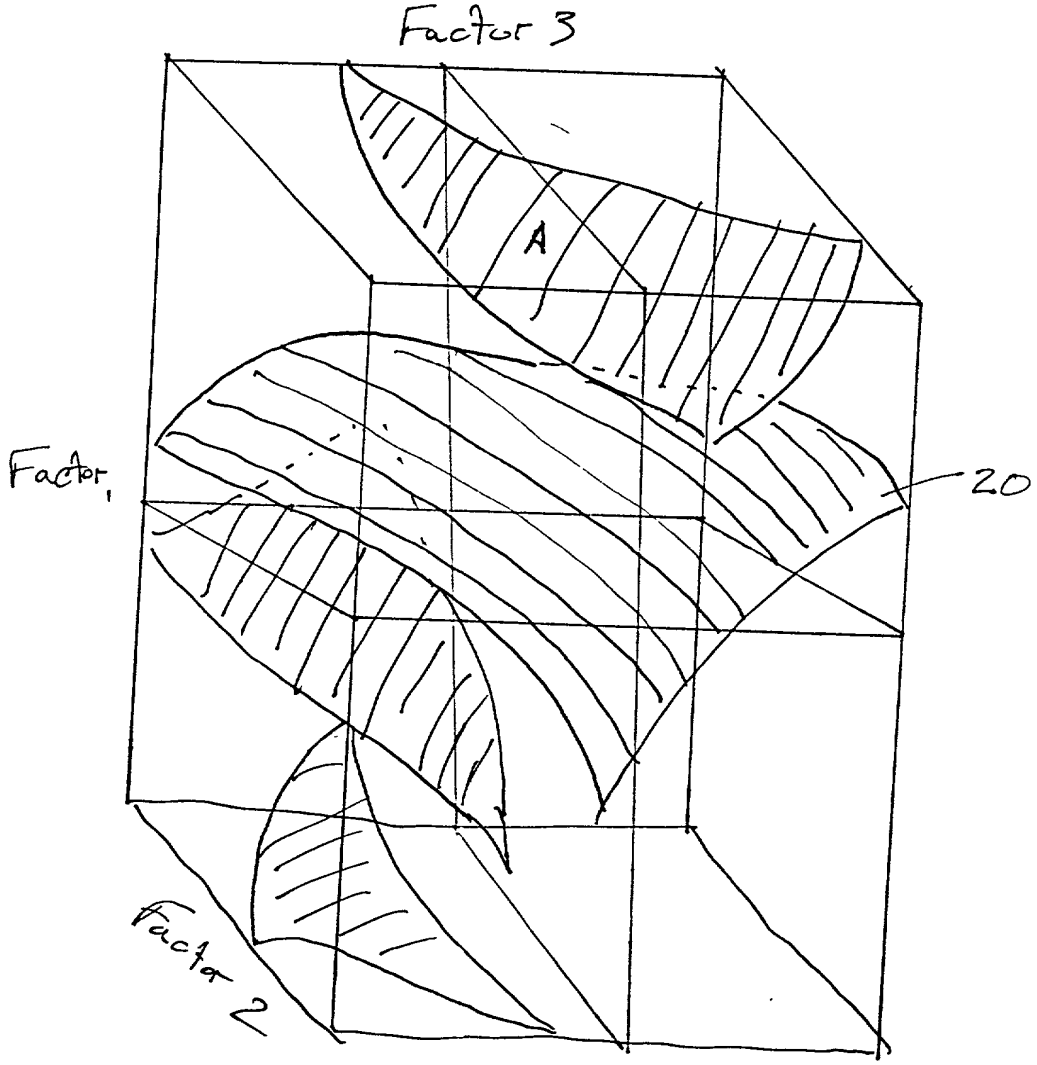



Prior Art

Figure 1

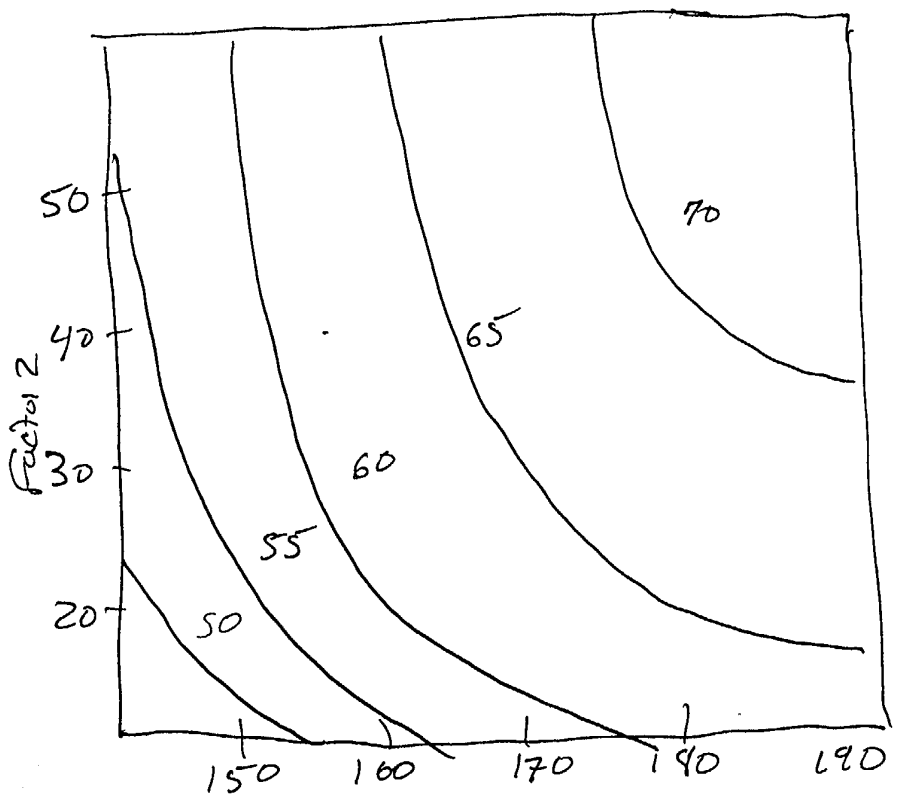



Figure 2A
Prior Art

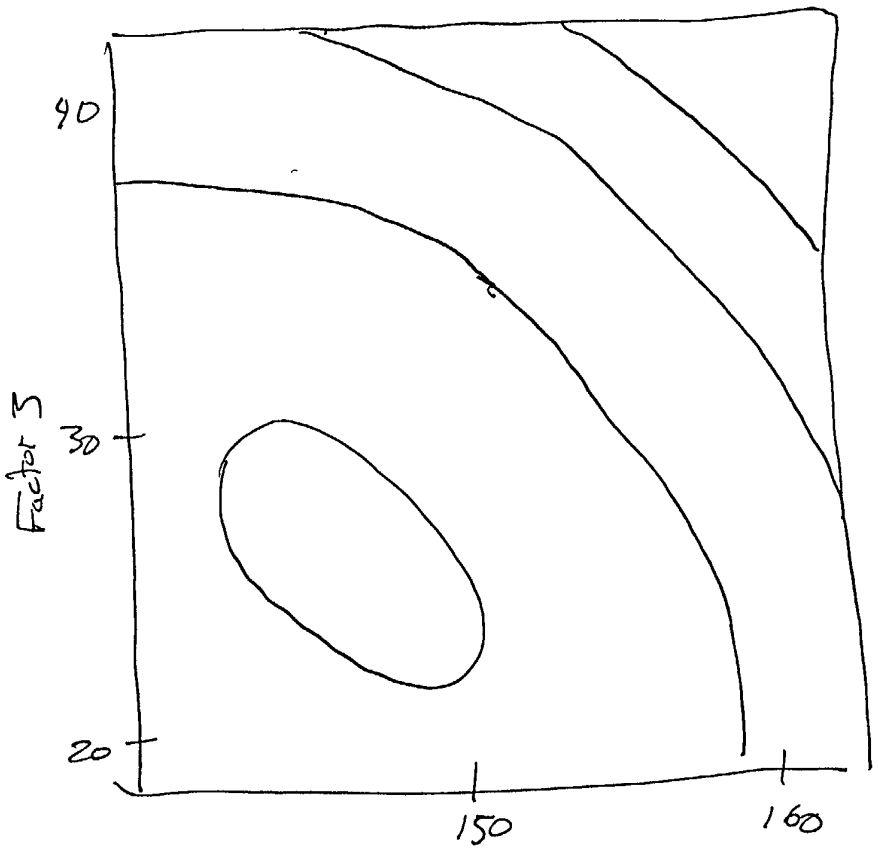
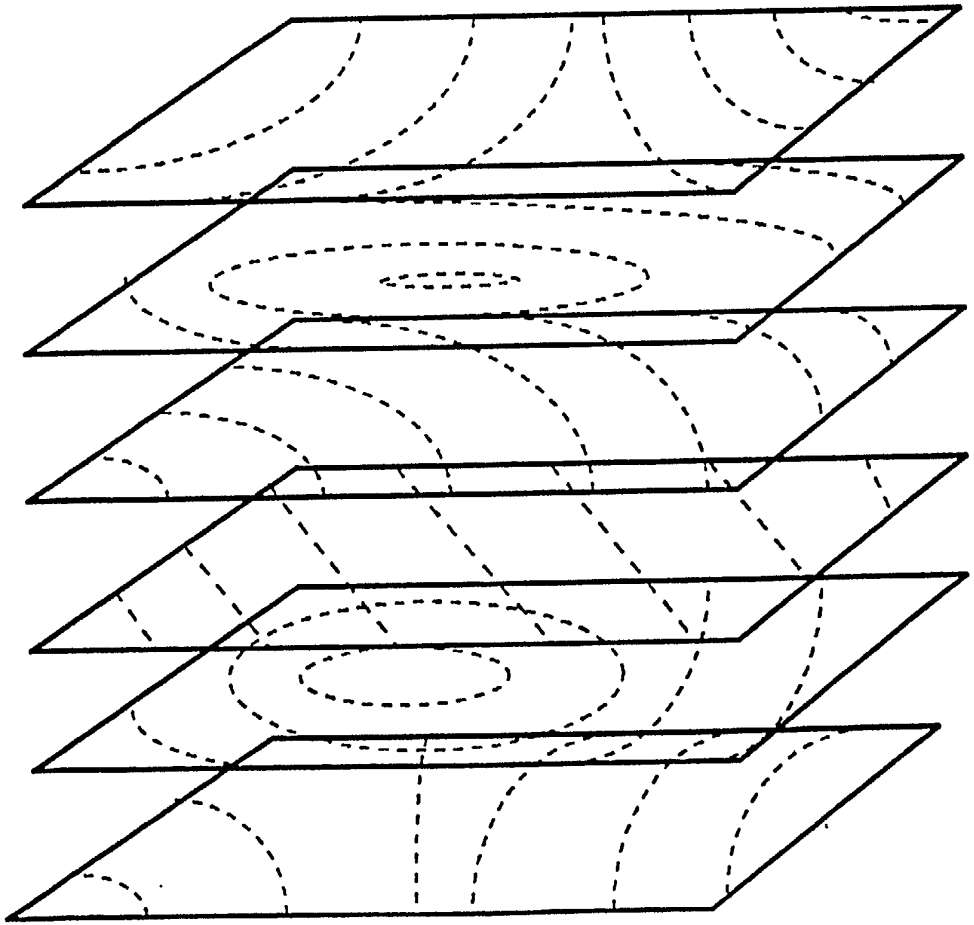



Figure 2b
Prior Art

FOTOTO "4354260

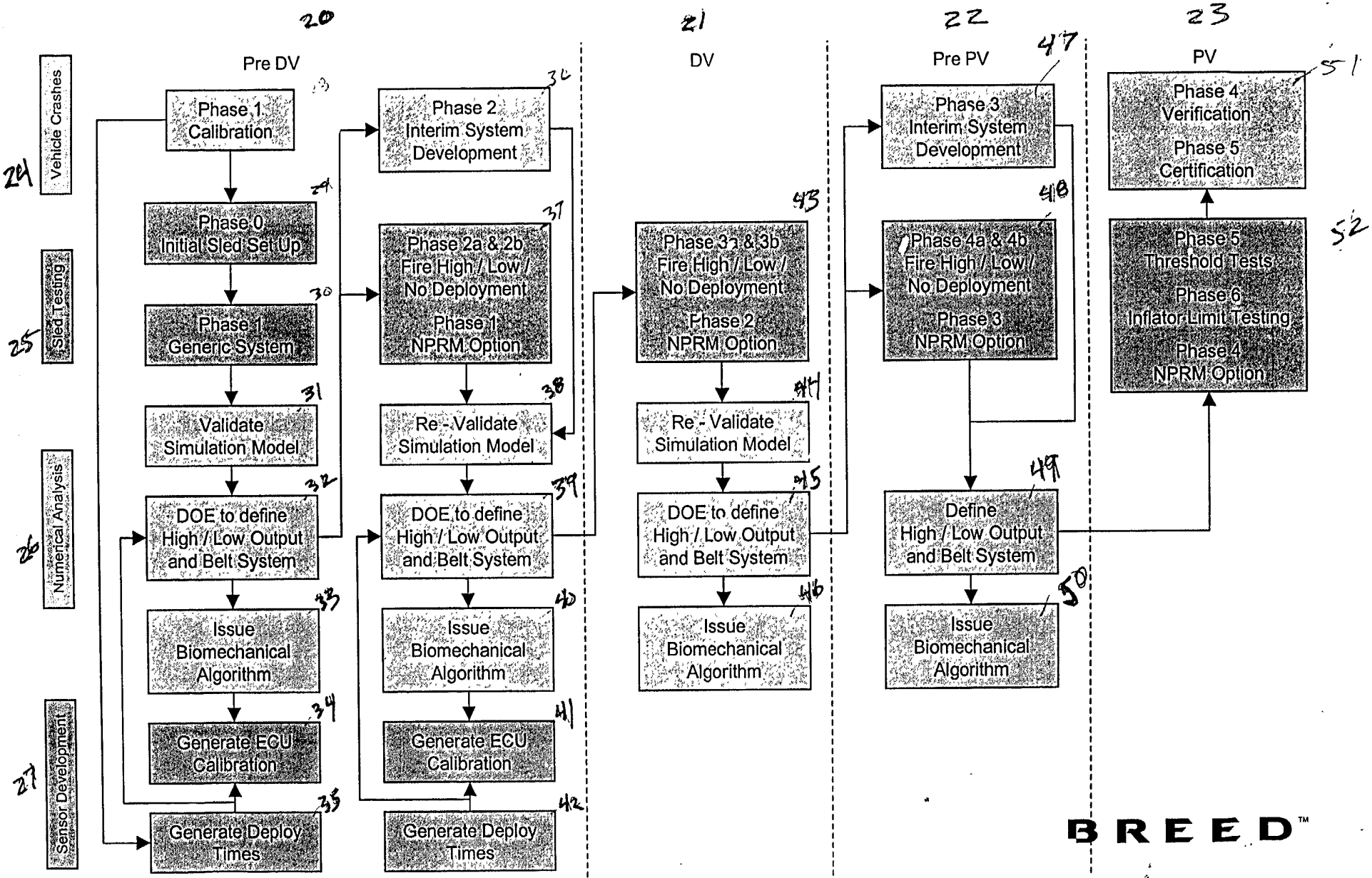


Prior Art

Figure 2C

PROTECTED BREED

# Biomechanical System Development




BREED™

Revision 3: 07 Dec 99

Proprietary

Fig 3

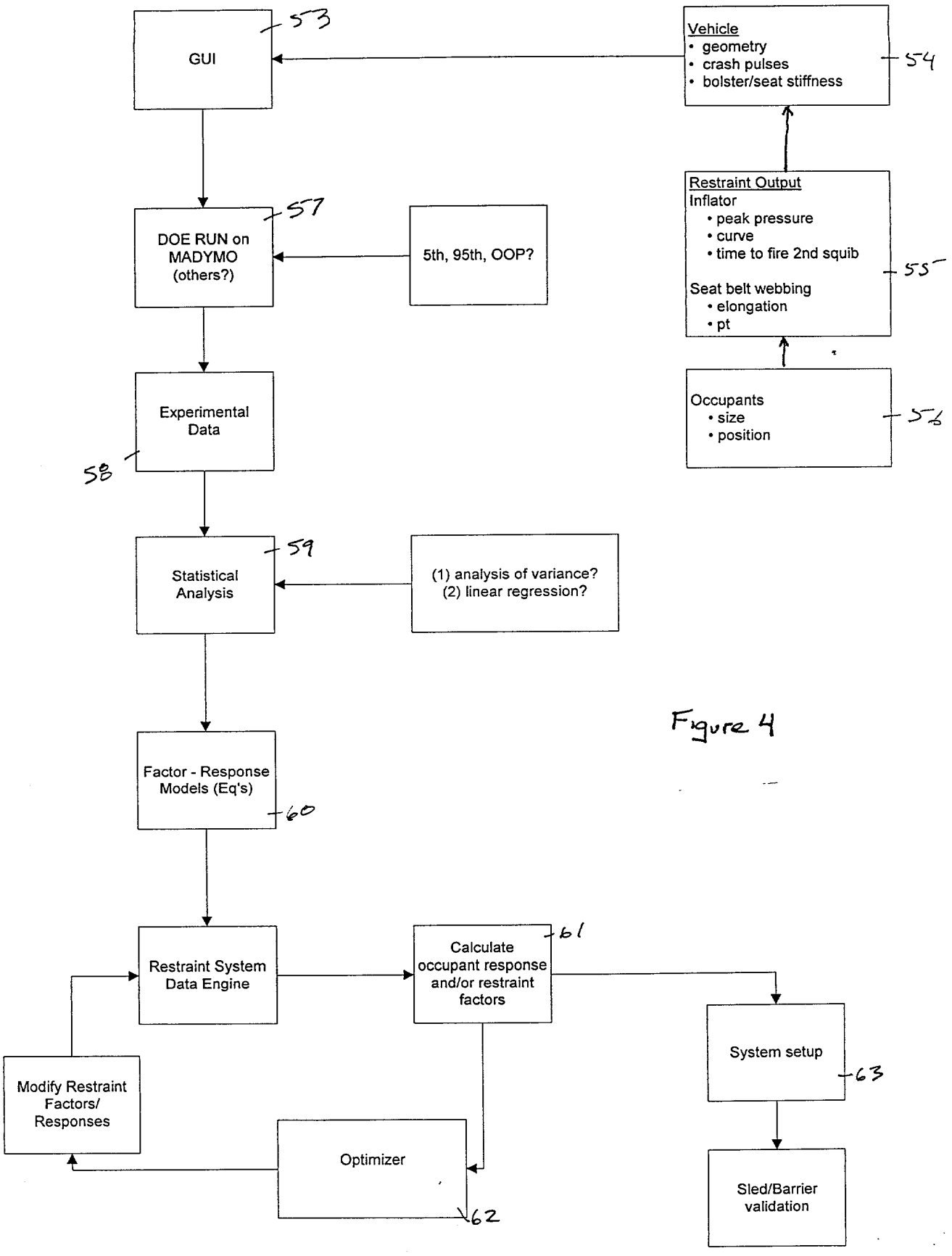

GUI
53
Vehicle
• geometry
• crash pulses
• bolster/seat stiffness
54
Restraint Output
Inflator
• peak pressure
• curve
• time to fire 2nd squib
Seat belt webbing
• elongation
• pt
55
Occupants
• size
• position
56
DOE RUN on MADYMO (others?)
57
5th, 95th, OOP?
Experimental Data
58
Statistical Analysis
59
(1) analysis of variance?
(2) linear regression?
Factor - Response Models (Eq's)
60
Restraint System Data Engine
Calculate occupant response and/or restraint factors
61
System setup
63
Modify Restraint Factors/ Responses
Optimizer
62
Sled/Barrier validation

Figure 4

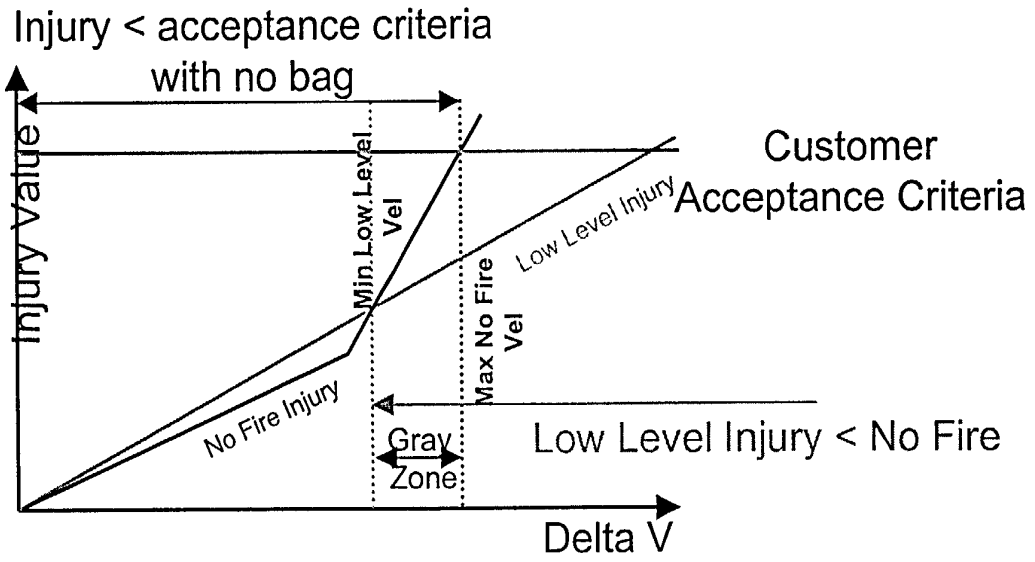



Figure 5

Fig 6

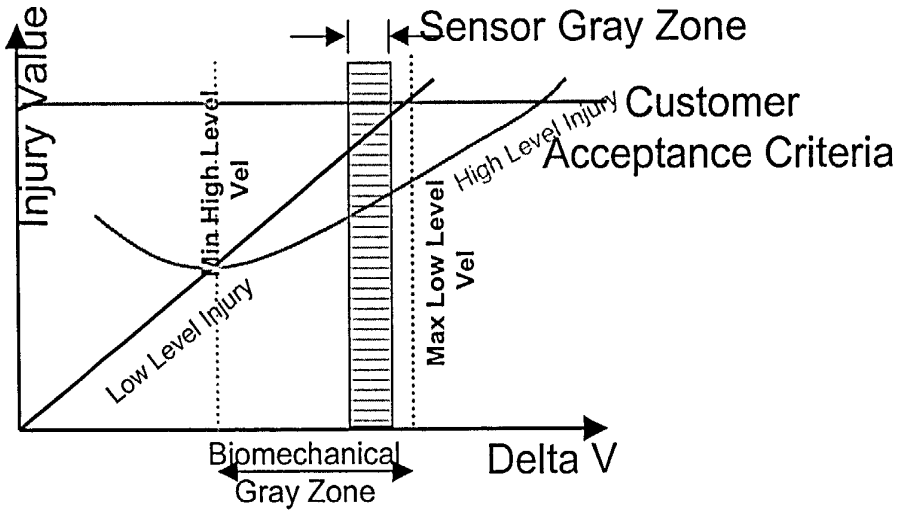

Sensor Gray Zone
Injury Value
Customer
Acceptance Criteria
Min High Level
Vel
High Level Injury
Max Low Level
Vel
Low Level Injury
Biomechanical
Gray Zone
Delta V

Figure 6

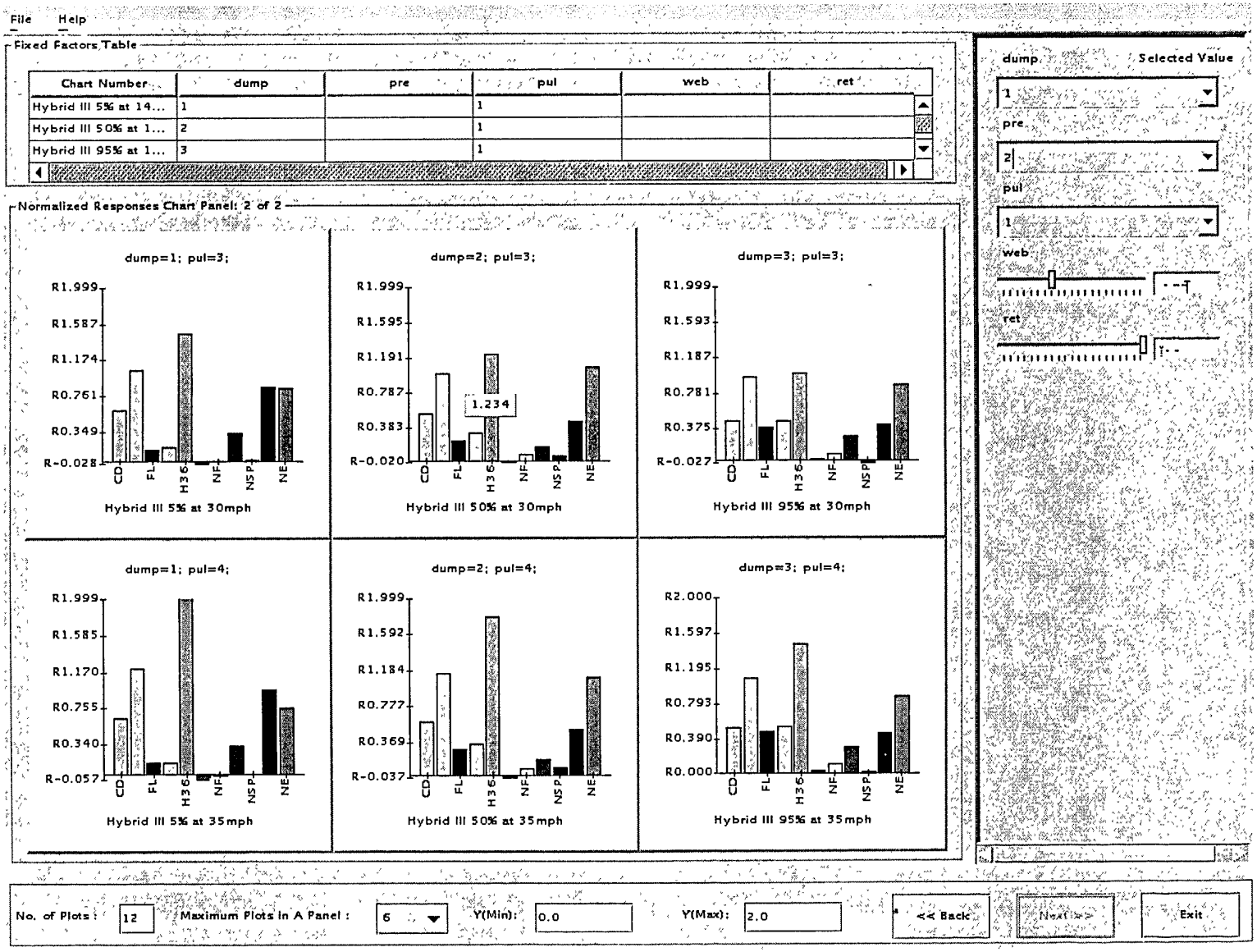
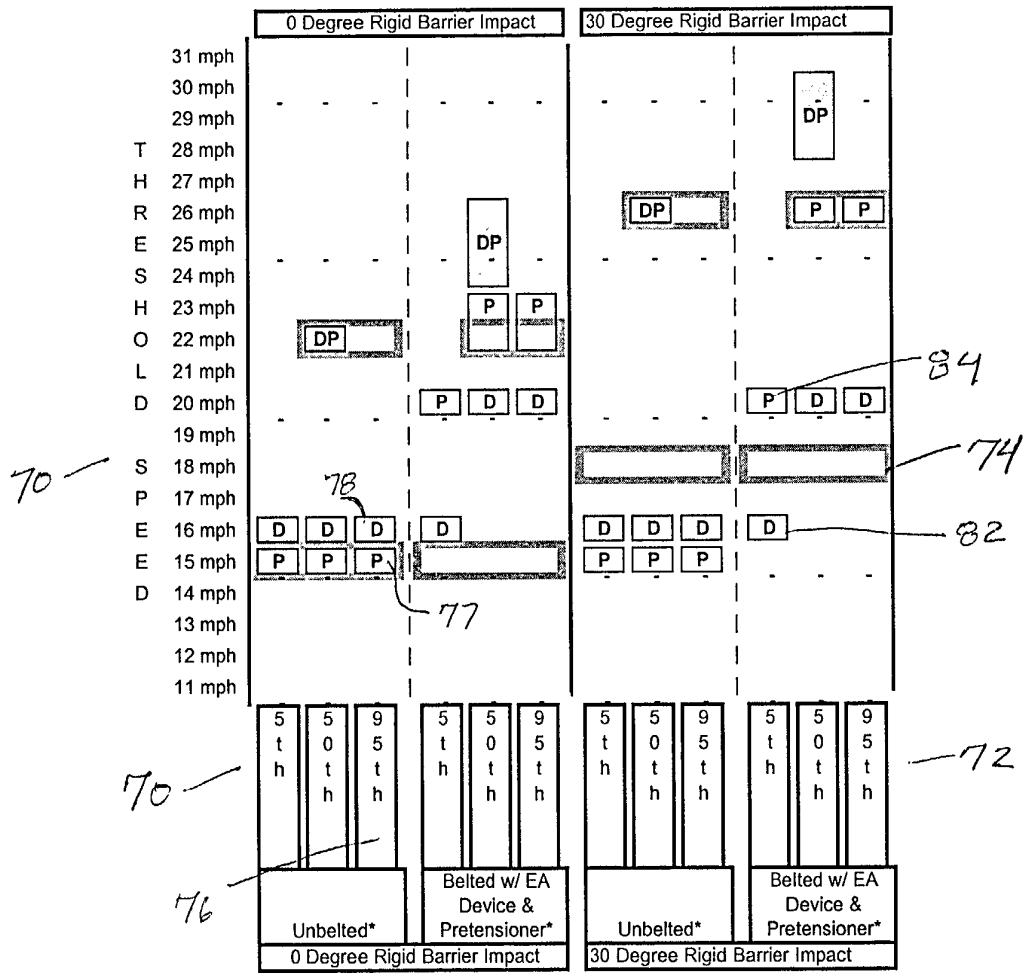

File
Help
Fixed Factors Table
Chart Number
dump
pre
pul
web
ret
Hybrid III 5% at 14...
Hybrid III 50% at 1...
Hybrid III 95% at 1...
Normalized Responses Chart Panel: 2 of 2
dump=1; pul=3;
dump=2; pul=3;
dump=3; pul=3;
dump=1; pul=4;
dump=2; pul=4;
dump=3; pul=4;
Hybrid III 5% at 30mph
Hybrid III 50% at 30mph
Hybrid III 95% at 30mph
Hybrid III 5% at 35mph
Hybrid III 50% at 35mph
Hybrid III 95% at 35mph
1.234
CD
FL
H36
NF
NSP
NE
Selected Value
No. of Plots :
12
Maximum Plots in A Panel :
6
Y(Min):
0.0
Y(Max):
2.0
<< Back
Next >>
Exit

Figure 7

BIOMECHANICAL MAP




Variable A Adjustment

Variable B Adjustment

Variable C Adjustment

Variable D Adjustment

Driver Threshold

Passenger Threshold

Sensor Threshold

Figure 8

039/039
BREED TECH. SRS
01/13/01 13:02 FAX 810 728 4172

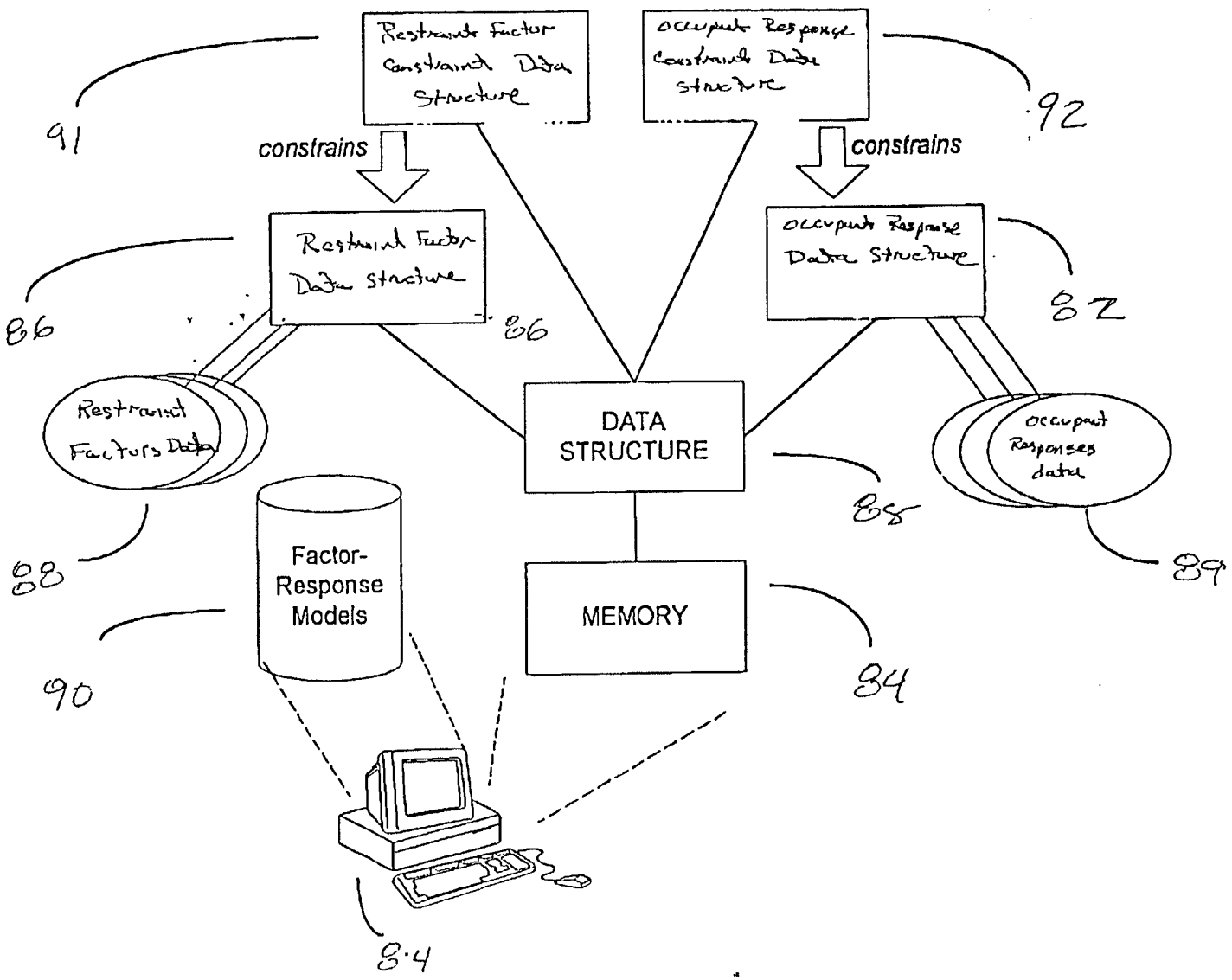



Figure 9